Autosubmit 2.3

M. Asif, D. Manubens, O. Mula

Outline

- Introduction
- Structure changes
- Dynamic templates
- Remarks

Introduction

- Modularisation: GIT structure

  Introduce a better version control system for the templates and model sources and more options to create new experiments based on different developments by the user

- Runtime dynamic variables

  A change on a variable value in "expdef_<expid>.conf" does not require a re-creation of the experiment. Values are read at runtime

- Dynamic headers

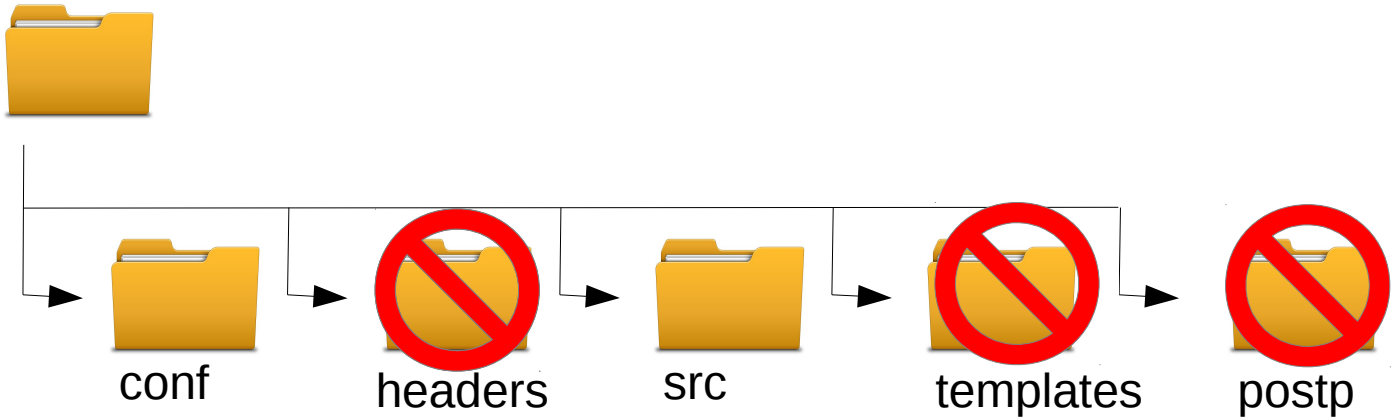
  Header inclusion simplified and new variables introduced. Wall-clock time and number of processors can be adjusted by the user from "expdef_<expid>.conf"

- Dynamic template generation

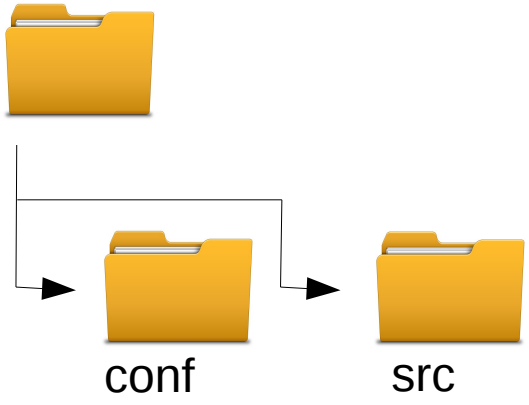
  Improved template management. The executable scripts are created at runtime.

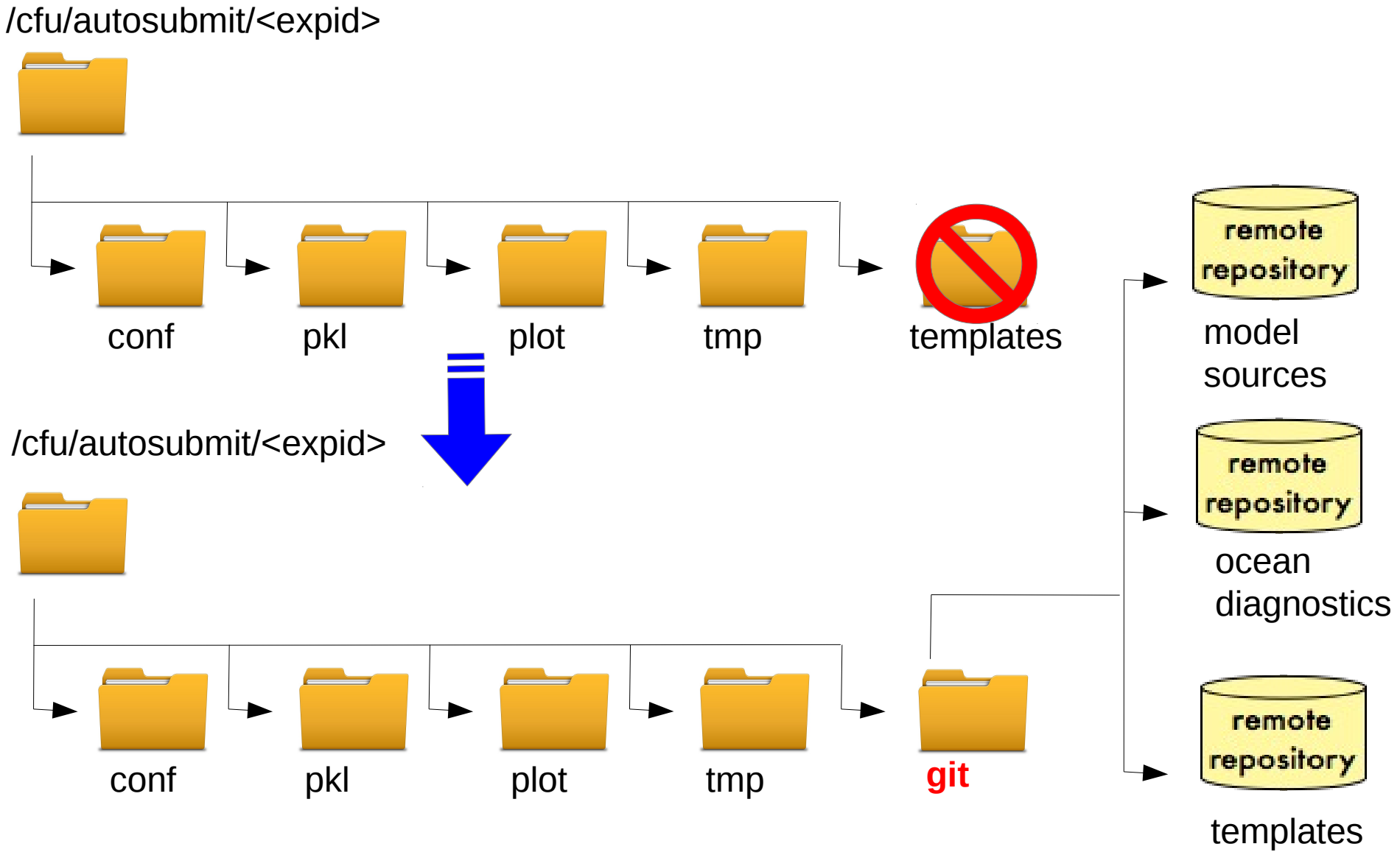
Structure changes

~/autosubmit 2.1

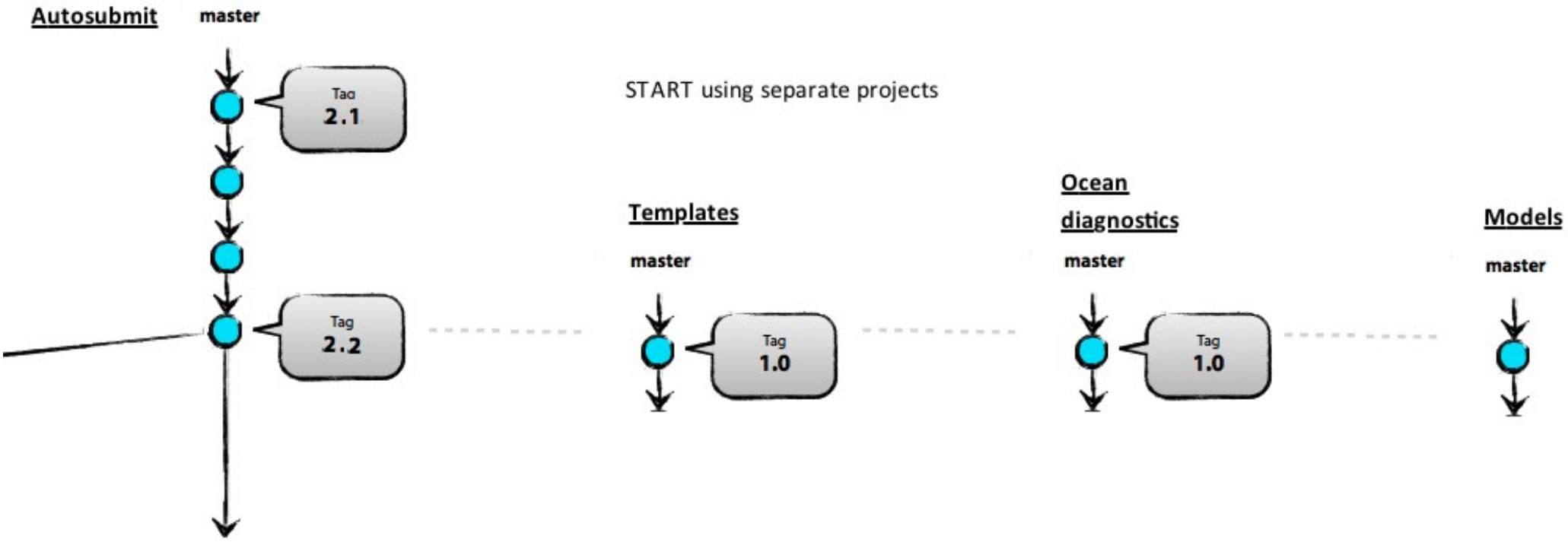


~/autosubmit 2.3




/cfu/autosubmit/<expid>
conf
pkl
plot
tmp
templates
/cfu/autosubmit/<expid>
conf
pkl
plot
tmp
git
remote repository
model sources
remote repository
ocean diagnostics
remote repository
templates

- After changes



- Separate projects

Templates

```
Switched to a new branch 'develop-1.1'
dmanubens@tyr~ /home/dmanubens/tmp/templates.git~$
.
├── common
│   ├── common.conf
│   ├── common.localsetup
│   ├── common.localtrans
│   └── common.remotesetup
├── ecearth
│   ├── ecearth.clean
│   ├── ecearth.conf
│   ├── ecearth.ini
│   ├── ecearth.post
│   └── ecearth.sim
└── ecearth3
    ├── ecearth3.clean
    ├── ecearth3.conf
    ├── ecearth3.ini
    ├── ecearth3.post
    └── ecearth3.sim
```

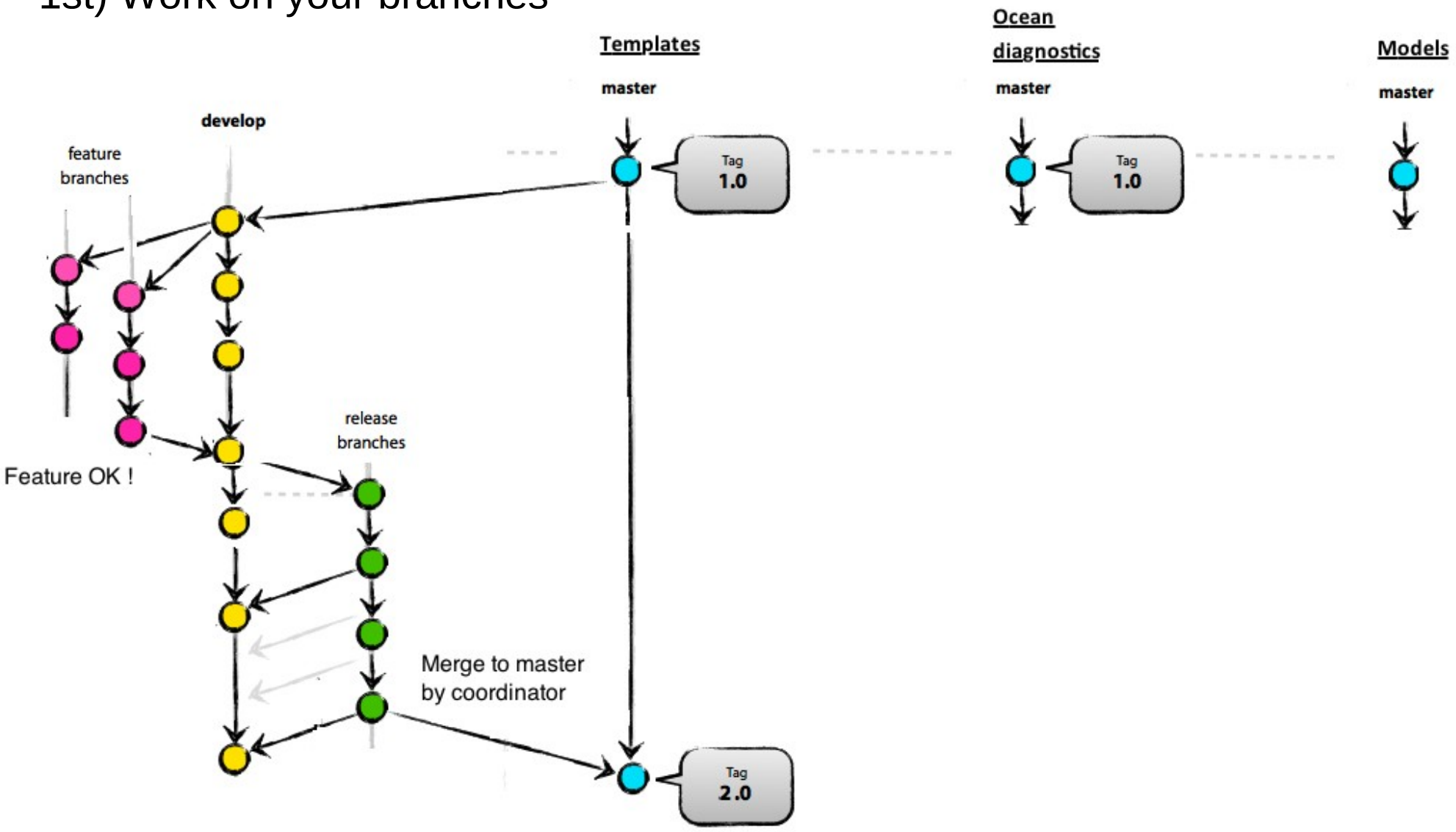
Models

```
dmanubens@tyr~ /home/dmanubens/tmp/ecearth~$
.
├── setup
│   └── ctrl
└── sources
    ├── doc
    ├── runtime
    └── sources
```

Ocean diagnostics

```
Already on 'master'
dmanubens@tyr~ /home/dmanubens/tmp/ocean_diagnostics~$
.
├── common_ocean_post.txt
├── config_file-ocean_pp.bash
├── ocean_pp.bash
└── README
```

- 1st) Work on your branches



- 2nd) Create your experiment

Experiment arguments

- Before

```
python expid.py -h

usage: expid.py [-h] (--new {ecearth,ecearth3,ifs,ifs3,nemo} | --copy COPY)
                --HPC {bsc,hector,ithaca,lindgren,ecmwf,marenostrum3}
                --description DESCRIPTION

python expid.py --new ecearth --HPC ithaca --description "experiment is about..."
```

- After (new options to link with git repositories)

```
python expid.py -h

usage: expid.py [-h] (--new | --copy COPY)
                --HPC {bsc,hector,ithaca,lindgren,ecmwf,marenostrum3}
                --model_name {ecearth,nemo}
                --model_branch MODEL_BRANCH {master (default), v3.0.1, v2.3.0, develop-v3.0.1, develop-v2.3.0, ...}
                --template_name {ecearth,ecearth3,ifs,ifs3,nemo}
                [--template_branch TEMPLATE_BRANCH] {master (defualt), develop, develop-SPPT, ...}
                [--ocean_diagnostics_branch OCEAN_DIAGNOSTICS_BRANCH] {master (defualt), develop, ...}
                --description DESCRIPTION

examples:
        python expid.py --new --HPC ithaca --model_name ecearth --model_branch v2.3.0 --template_name ecearth --description "ex
        python expid.py --new --HPC ithaca --model_name ecearth3 --model_branch develop-v3.0.1-nudging --template_name ecearth3
                                    --template_branch develop-nudging --description "experiment is about..."
```

Dynamic templates

- Templates have a configuration file with the list of variables.
- A new type of variable INCLUDE_* allows the inclusion of external scripts for the usage from the templates i.e. “common_ocean_post.txt”
- Common templates have a configuration file with the list of common variables. (wallclock, numproc, …)
- All variables are merged in the “expdef_<expid>.conf” where the user can put the values.
- The executable scripts are created at runtime

Remarks

- The templates can be updated on the fly ?
  - Yes, stop and run again the experiment will make the changes available for further running. The updates are under version control.

- New variables can be added in the configuration files on the fly ?
  - Yes. Added variables in the templates GIT project are not transferred to an existing configuration. Current “expdef_<expid>.conf” has to be updated.

- The autosubmit.conf, expdef.conf, archdef.conf variable values can be updated on the fly ?
  - Yes. Except for the variables defining the extension of the experiment. (Startdates, chunks, ...)

Remarks

- I want to run experiments created with Autosubmit 2.0, 2.1 or 2.2. How do I do that?
    - Clone the old Autosubmit version (2.0, 2.1, 2.2) with which you created the experiment and run

```
git clone https://dev.cfu.local/autosubmit.git <localdir>
git checkout <tag>
```

    - I want to run it with latest Autosubmit 2.3...NOT POSSIBLE directly: NO BACKWARDS COMPATIBILITY
- How do I know what templates project can I use ?
    - Autosubmit 2.3 only runs with template version >= 1.1
    - Why? Because template files are now ready to be under version control. Additionally they include a variable for the HEADER, new experiment DYNAMIC variables under template specific configuration file and new PATHS w.r.t. new GIT structure

Autosubmit 2.3

M. Asif, D. Manubens, O. Mula